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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/808,437	03/25/2004	Masami Suwama	2004-0483A	6940

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EXAMINER

FLETCHER III, WILLIAM P

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 07/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/808,437

Applicant(s)

SUWAMA ET AL.

Examiner

William P. Fletcher III

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 May 2005.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
4a) Of the above claim(s) 20 and 21 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-19 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 25 June 2004.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: definition of "rigid."

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group I, Claims 1-19, in the reply filed on 02 May 2005 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

2. Claims 20 and 21 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 02 May 2005 (see above).

Priority

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

4. The information disclosure statement (IDS) submitted on 25 June 2004 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner. An initialed, signed, and dated copy of the Form PTO-1449 is attached to this action.

Specification

5. The abstract of the disclosure is objected to because it is more than a single paragraph. Correction is required. See MPEP § 608.01(b).

6. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed

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150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

7. The use of numerous trademarks has been noted in this application. Trademarks should be capitalized wherever they appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. **Claims 1-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

10. The term "rigid" in claim 1 is a relative term which renders the claim indefinite. The term "rigid" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. While applicant provides examples of suitable "rigid resin parts," such as the plastic automotive parts disclosed at page 3, lines 4-12 of the specification, applicant provides no explicit definition of the term "rigid." An ordinary,

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dictionary definition of the term is “stiff or unyielding; not pliant or flexible; hard.”¹ This definition is still relative because an object may only be considered rigid, stiff, or inflexible with respect to an applied force. An object that is rigid with respect to one applied force may be easily deformed by another, greater applied force. Consequently, because the term “rigid” is not defined with respect to a standard (such as an applied force, flexural strength, etc.), one of ordinary skill in the art would not be reasonably apprised of the metes and bounds of the claimed invention.

Claims 2-19 are similarly rejected by virtue of their incorporation of this indefinite subject matter.

11. Further, claim 1 recites: “...a primary hydroxyl-containing monomer selected from 4-hydroxybutyl(meth)acrylate monomers and ϵ -caprolactone-modified vinyl monomers obtained by ring-opening polymerization of ϵ -caprolactone with hydroxyalkyl(meth)acrylate...”. This phraseology appears to be an improper Markush grouping (i.e., “selected from the group consisting of X and Y”) which renders the claim indefinite because it is impossible to determine whether the claim requires *either* hydroxybutyl(meth)acrylate monomers *or* ϵ -caprolactone-modified vinyl monomers (i.e., an alternative limitation in Markush format) or whether the claim requires *both* hydroxybutyl(meth)acrylate monomers *and* ϵ -caprolactone-modified vinyl monomers.

The examiner has reviewed page 8 of the specification which discloses that the primary hydroxyl-containing monomer may be hydroxybutyl(meth)acrylate monomers *and/or* ϵ -

¹ *The American College Dictionary*, ©1970 by Random House, Inc., page 1045, see attached.

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caprolactone-modified vinyl monomers. For the purpose of searching and evaluating the prior art, the examiner has interpreted the claim in this fashion.

Claims 2-19 are similarly rejected by virtue of their incorporation of this indefinite subject matter.

12. Regarding claim 6, the phrases “in particular” and “preferably” render this claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim 7 is similarly rejected by virtue of its incorporation of this indefinite subject matter.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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15. **Claims 1 and 3-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rink et al. (US 6,013,739 A).**

With respect to independent claim 1, Rink teaches a process for coating plastic automotive parts (which reads on applicant's claimed "rigid resin parts," as explained above) with a multilayer paint film coating (abstract and 10:20-29). The process comprises applying a color base paint coating to the surface of a part, applying a clear top paint coat atop the base coat, and baking (i.e., curing) the two paint films (10:30-42). The clear top coating composition comprises a hydroxyl-containing acrylic resin (A) and from 6 to 20% by weight of a curing agent (B), based on the solids content of (A) and (B) (2:30-3:37). (A) may be prepared by free radical polymerization and preferably has a hydroxyl value of 80-160 mgKOH/g (4:35-63). More specifically, (A) is the reaction product of:

(a1) from 10 to 85% by weight, preferably 20 to 65% by weight, of a monomer that may be 4-hydroxy-n-butyl(meth)acrylate (3:60-4:34 and 5:40-6:17) — this component reads on applicant's claimed component (a);

(a2) from 15 to 90% by weight, preferably 35 to 80% by weight, of a hydroxyl-containing monomer (3:60-4:34 and 5:40-6:17) — this component reads on applicant's claimed (b);

(b) from 0 to 20% by weight, preferably from 0 to 10% by weight, of another hydroxyl-containing monomer (4:10-17) — this component *also* reads on applicant's claimed (b); and

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(c)-(f) various other polymerizable unsaturated monomers with (c), for example, being present in from 28 to 85% by weight, preferably 40 to 70% by weight (4:18-34) — these components, both individually and collectively, read on applicant's claimed (c).

As noted above, the examiner has interpreted this claim as requiring hydroxybutyl(meth)acrylate monomers *and/or* ϵ -caprolactone-modified vinyl monomers. In teaching 4-hydroxy-n-butyl(meth)acrylate as (a1), Rink satisfies the “or” way of reading this claim. Rink further teaches that (b) may be the reaction product of hydroxyethyl(meth)acrylate with ϵ -caprolactone (6:18-35), thereby satisfying the “and” way of reading this claim as well.

Rink teaches that the clear top coating composition “usually” contains from 15 to 45% by weight (A) and, consequently, does not explicitly state that the composition comprises 60 to 90% by weight (A), as claimed.

Generally, differences in concentration will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration is critical because it is well settled that, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.² See MPEP § 2144.05. The amount of binder in a coating composition, especially when selected in relation to a curing agent as taught by Rink (8:42-50), is a result-effective variable effecting at least the speed and degree of curing. Consequently, absent clear and convincing evidence of unexpected results demonstrating the criticality of the claimed concentration of (A), it would have been obvious to one of ordinary skill in the art to modify the process of Rink so as to optimize this result-effective variable by routine experimentation.

² *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

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With respect to claim 3, Rink teaches that (A) has a preferred hydroxyl value of 80 to 160 mgKOH/g (4:35-41). Both of these ranges encompass that of 100 to 140 mgKOH/g claimed. In the case where the claimed ranges overlap or lie inside ranges disclosed by the prior art, a *prima facie* case of obviousness exists. See MPEP § 2144.05(I).

With respect to claim 4, Rink teaches that (A) has a molecular weight of 1000 to 5000 (4:35-41).

With respect to claim 5, Rink teaches that (A) has an acid number of 0 to 35 mgKOH/g, preferably 0 to 25 mgKOH/g (4:35-41).

With respect to claims 6 and 7, it is the examiner's position that the reaction product of hydroxyethyl(meth)acrylate and ϵ -caprolactone, taught by Rink, results in the claimed ϵ -caprolactone-modified vinyl monomer, where $R^1=H$ and $R^2=ethylene$ (from the hydroxyethyl(meth)acrylate).

With respect to claims 8 and 9, as noted above, Rink's (a2) reads on applicant's claimed (b). Rink teaches that (a2) may be 2-hydroxy-n-propyl(meth)acrylate (4:5-10).

With respect to claim 10, as noted above, Rink's (c)-(f) read on applicant's claimed (c). Rink teaches that (c)-(f) may be styrene, alkyl esters of (meth)acrylic acid, and/or (meth)acrylic acid (6:45-7:15).

With respect to claim 11, as noted above, (A) is the reaction product of:

(a1) from 10 to 85% by weight, preferably 20 to 65% by weight, of a monomer that may be 4-hydroxy-n-butyl(meth)acrylate (3:60-4:34 and 5:40-6:17) — this component reads on applicant's claimed component (a);

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(a2) from 15 to 90% by weight, preferably 35 to 80% by weight, of a hydroxyl-containing monomer (3:60-4:34 and 5:40-6:17) — this component reads on applicant's claimed (b);

(b) from 0 to 20% by weight, preferably from 0 to 10% by weight, of another hydroxyl-containing monomer (4:10-17) — this component *also* reads on applicant's claimed (b); and

(c)-(f) various other polymerizable unsaturated monomers, with (c), for example, being present in from 28 to 85% by weight, preferably 40 to 70% by weight (4:18-34) — these components, both individually and collectively, read on applicant's claimed (c).

With respect to claim 12, Rink teaches that the curing agent is a polyisocyanate (7:17-8:41).

With respect to claim 13, as noted above, Rink teaches 6 to 20% by weight of curing agent (B). Further, Rink teaches that the clear top coating composition “usually” contains from 15 to 45% by weight (A) and, consequently, does not explicitly state that the composition comprises 65 to 85% by weight (A), as claimed. Again, differences in concentration will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration is critical because it is well settled that, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.³ See MPEP § 2144.05. The amount of binder in a coating composition, especially when selected in relation to a curing agent as taught by Rink (8:42-50), is a result-effective variable effecting at least the speed and degree of curing.

³ *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

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Consequently, absent clear and convincing evidence of unexpected results demonstrating the criticality of the claimed concentration of (A), it would have been obvious to one of ordinary skill in the art to modify the process of Rink so as to optimize this result-effective variable by routine experimentation.

With respect to claims 14 and 15, Rink teaches that the coating composition may further contain up to 20% by weight of a hydroxyl-group containing oligomer that is the reaction product of (meth)acrylic acid (i.e., a carboxyl group-containing compound) with a glycidyl ester of a carboxylic acid (i.e., an epoxy-containing compound) (6:27-29).

With respect to claims 16 and 17, Rink teaches neither the claimed hydroxyl value nor the claimed molecular weight for the oligomer. Rink does, however, teach that the polymerization conditions for a polymer may be adjusted to give a desired molecular weight and a desired hydroxyl value (5:23-40). Further, it is the examiner's position that these values are both physical properties of the polymer and result-effective variables: the molar weight of a polymer effects the mechanical strength of the polymer and the hydroxyl number of the polymer effects the curing characteristics of the polymer. Since Rink teaches the same reactants and reaction products as claimed by applicant, and since the molecular weight and hydroxyl number are result-effective variables known to be within the purview of one of ordinary skill to adjust as desired, it would have been obvious to modify the process of Rink so as to optimize the molecular weight and the hydroxyl number by routine experimentation, absent evidence of the criticality thereof. See MPEP § 2144.05.

With respect to claim 18, Rink teaches that both the base coat and the top coat are cured together (i.e., 2-coat-1-bake system) (10:30-42).

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With respect to claim 19, Rink teaches that curing is preferably performed at temperatures of about 60°C (10:11-19).

16. **Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rink et al. (US 6,013,739 A) as applied to claim 1 above, and further in view of Asahina et al. (US 5,817,732 A) and Croft (US 5,688,860 A).**

The teaching of Rink is detailed above. As noted, Rink teaches a process in which a color base coat is applied to the surface of a plastic automotive part, followed by the application of a clear coat, with the two coats being cured together (10:30-42). Since Rink teaches the use of “known” base coat compositions (10:43-44), one of ordinary skill in the art would have looked to the prior art to find a suitable base coat composition.

Asahina teaches a color base coating composition suitable for use in multi-layer coatings on automotive and plastic substrates (abstract and 11:1-26). The composition is a one-package composition comprising a polyester polyol having a hydroxyl value of 10 to 300 mgKOH/g, which encompasses the hydroxyl value range claimed by applicant, and an aliphatic or alicyclic blocked isocyanurate polyisocyanate (4:9-25; 5:53-8:15; and 10:27-35). Again, in the case where the claimed ranges overlap or lie inside ranges disclosed by the prior art, a *prima facie* case of obviousness exists. See MPEP § 2144.05(I). This one-package composition is advantageous because separate storage and mixing of resin and hardener components is not necessary. Further, Asahina teaches that the composition has excellent weathering resistance, yellowing resistance, and is particularly well-suited for curing at lower temperatures (11:5-15).

It would have been obvious to one of ordinary skill to modify the process of Rink to utilize, as the color base coat, the one-package color base coat composition of Asahina. One of

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ordinary skill in the art would have been motivated to do so by the desire and expectation of successfully providing a base coating having the above-named advantageous properties.

Asahina further teaches that the blocked polyisocyanate may be blocked by more than one blocking group, non-limiting examples of which include dimethyl and diethyl malonate (5:65-67), but does not explicitly state that the blocking groups include acetoacetic acid ester.

Croft teaches that "the blocking of polyisocyanates with...acetoacetic ester [and] diethyl malonate...is a procedure which is well known for the temporary retardation of reaction between polyisocyanates and active hydrogen containing compounds" (5:10-15).

Since Asahina is not limiting as to the blocking agents that may be utilized, it would have been obvious to one of ordinary skill in the art to modify the process of Rink in view of Asahina to utilize, in addition to the dialkyl malonate blocking agents disclosed by Asahina, acetoacetic acid ester. One of ordinary skill in the art would have been motivated to do so by the teaching of Croft that doing so is known to be effective for blocking polyisocyanates in reactive mixtures.

Conclusion

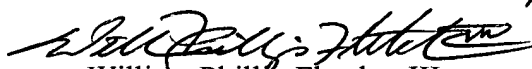
17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 6,472,493 B1 is cited as representative of the prior art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William P. Fletcher III whose telephone number is (571) 272-1419. The examiner can normally be reached on Monday through Friday, 9 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



William Phillip Fletcher III
Patent Examiner, USPTO
Art Unit 1762

7/7/2005